An Integral Field Spectrograph for TPF-C

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An integral field spectrograph following the TPF coronagraph can provide the required spectral resolving power $R \approx 70$ with spatial resolution at the telescope diffraction limit, and covering the coronagrapic dark hole. This allows spectra to be obtained of all planets around the star simultaneously, spectra of disks, measurement of residual speckles for subtraction, and insensitivity to roll control and alignment. Short spectra and many spatial elements are most easily implemented using a microlens array at the entrance to prism spectrograph. A design demonstrating feasibility will be shown.